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GENERAL ELECTRIC COMPANY  
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NISKAYUNA, NY 12309

EXAMINER

HODGES, MATTHEW P

ART UNIT PAPER NUMBER

2879

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Please find below and/or attached an Office communication concerning this application or proceeding.



**DETAILED ACTION*****Claim Objections***

Claim 52 is objected to because of the following informalities:

Claim 52, line 11, the series for each phosphor is led by a number except for the last group which appears to inadvertently be led by the letter "d". It is assumed for the purposes of examination that the number "4" was intended.

Appropriate correction is required.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 17, 20, 23, 26, and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,685,852. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented case includes phosphors including (Sr, Ca, Ba)<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>Cl:Eu, (Sr, Ca, Ba)MgAl<sub>10</sub>O<sub>17</sub>:Eu<sup>2+</sup>, Mn<sup>2+</sup>, and 3.5MgO 0.5MgF<sub>2</sub> GeO<sub>2</sub>:Mn<sup>4+</sup>. Further the parent case and application have overlapping ranges of radiation that can be absorbed.

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Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,685,852. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented case includes phosphors including  $(\text{Sr, Ca, Ba})_5(\text{PO}_4)_3\text{Cl:Eu}$ ,  $(\text{Sr, Ca, Ba})\text{MgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}, \text{Mn}^{2+}$ , and  $3.5\text{MgO} \cdot 0.5\text{MgF}_2 \cdot \text{GeO}_2:\text{Mn}^{4+}$ . Further the parent case and application have overlapping ranges of radiation that can be absorbed.

Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,685,852. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented case includes phosphors including  $(\text{Sr, Ca, Ba})_5(\text{PO}_4)_3\text{Cl:Eu}$ ,  $(\text{Sr, Ca, Ba})\text{MgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}, \text{Mn}^{2+}$ , and  $3.5\text{MgO} \cdot 0.5\text{MgF}_2 \cdot \text{GeO}_2:\text{Mn}^{4+}$ . Further the parent case and application have overlapping ranges of radiation that can be absorbed.

Claims 1, 7-9, and 15-22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,580,097. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented case includes phosphors including  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}, \text{Mn}^{2+}$ , and  $\text{Y}_3\text{Al}_5\text{O}_{12}:\text{Ce}^{3+}$ . Though the range of radiation that can be absorbed is not stated, the phosphors stated are excited by UV and near UV radiation and thus there would be overlap in the ranges.

Claim 14 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,580,097. Although the

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conflicting claims are not identical, they are not patentably distinct from each other because of the reasons stated above and further because the use of the stated phosphors for the production of white light is an obvious application of the stated phosphor blend.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 17, 23, 26, 32, 35, 40, 43, 48, 51, 52, 55, 56, 58, 61, 62, 64, and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Northrop et al. (US 5,122,710).

Regarding claims 1-3, 17, 23, 26, 32, 35, 40, 43, 48, 51, 52, and 55, Northrop discloses a lamp including a tube filled with mercury vapor. The tube is coated with a phosphor blend including among other phosphors (Sr, Ca, Ba)<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>Cl:Eu and Y<sub>2</sub>O<sub>3</sub>:Eu. (Column 3 line 50 – Column 4 line 12). It is noted that the mercury discharge tube of this type emits UV radiation primarily at around 254nm. The phosphor blend is likewise sensitive to this wavelength.

Regarding claim 4, the emitted light is white light. (Column 4 lines 13-20).

Regarding claims 5 and 6, Northrop does not explicitly state the color coordinates of the white light however color coordinates of a phosphor blend are an inherent property of the blend itself. In this case the color coordinates are substantially close to the reference color of a black body locus.

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Regarding claims 56, 58, and 61, the phosphor blend has a CRI of 90. (Column 5 lines 1-5).

Regarding claims 62, 64, and 67, Northrop does not explicitly state the CCT range of the end phosphor blend however the CCT is an inherent property of the blend itself. In this case the CCT would be less than 6500K and greater than 2700K.

*Allowable Subject Matter*

Claims 36-39, 44-47, 57, 59, 63, and 65 are allowed.

Claims 10-13, 24, 25, 27, 28, 30, 31, 33, 34, 41, 42, 49, 50, 53, 54, 60, and 66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 10 and 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 10 and 11, and specifically comprising the limitation of a phosphor blend including  $(\text{Tb}, \text{Y}, \text{Lu}, \text{La}, \text{Gd})_x (\text{Al}, \text{Ga})_y \text{O}_{12}:\text{Ce}^{3+}$  along with another phosphor where the phosphor blend absorbs EM radiation in a range from about 250nm to 350nm.

Regarding claims 12 and 13, claims 12 and 13 are allowable for the reasons given in claim 11 because of their dependency status from claim 11.

Regarding claim 24, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 24, and specifically comprising the limitation of a phosphor blend including  $(\text{Tb}, \text{Y}, \text{Lu}, \text{La}, \text{Gd})_x (\text{Al}, \text{Ga})_y \text{O}_{12}:\text{Ce}^{3+}$  along with another

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phosphor where the phosphor blend absorbs EM radiation in a range from about 200nm to 4000nm and where y is in a range from about 4.5 to and including 5.

Regarding claim 25, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 25, and specifically comprising the limitation of a phosphor blend including  $(\text{Tb, Y, Lu, La, Gd})_x (\text{Al, Ga})_y \text{O}_{12}:\text{Ce}^{3+}$  along with another phosphor where the phosphor blend absorbs EM radiation in a range from about 200nm to 4000nm and where y is in a range from about 4.6 to and including 5.

Regarding claims 27 and 30, claims 27 and 30 are allowable for the same reasons given in claim 24.

Regarding claims 28 and 31, claims 28 and 31 are allowable for the same reasons given in claim 25.

Regarding claim 33, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 33, and specifically comprising the limitation of a light source including a source of gas discharge and a phosphor blend including  $(\text{Tb, Y, Lu, La, Gd})_x (\text{Al, Ga})_y \text{O}_{12}:\text{Ce}^{3+}$  along with another phosphor where the phosphor blend absorbs EM radiation in a range from about 200nm to 4000nm and where y is in a range from about 4.5 to and including 5.

Regarding claim 34, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 34, and specifically comprising the limitation of a light source including a source of gas discharge and a phosphor blend including  $(\text{Tb, Y, Lu, La, Gd})_x (\text{Al, Ga})_y \text{O}_{12}:\text{Ce}^{3+}$  along with another phosphor where the phosphor blend absorbs EM

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radiation in a range from about 200nm to 4000nm and where y is in a range from about 4.6 to and including 5.

Regarding claims 41, 49, and 53, claims 41, 49, and 53 are allowable for the same reasons given in claim 33.

Regarding claims 42, 50, and 54, claims 42, 50, and 54 are allowable for the same reasons given in claim 34.

Regarding claims 60 and 66, claims 60 and 66 are allowable for the reasons given in claim 49 because of their dependency status from claim 49.

Regarding claim 36, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 36, and specifically comprising the limitation of a light source including a source of gas discharge and a phosphor blend including (Tb, Y, Lu, La, Gd)<sub>x</sub> (Al, Ga)<sub>y</sub> O<sub>12</sub>:Ce<sup>3+</sup> along with another phosphor where the phosphor blend absorbs EM radiation in a range from about 200nm to 4000nm.

Regarding claims 37-39, 57, and 63, claims 37-39, 57, and 63 are allowable for the reasons given in claim 36 because of their dependency status from claim 36.

Regarding claim 44, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 44, and specifically comprising the limitation of a light source including a source of gas discharge and a phosphor blend including 2 of the phosphors from the list provided where the phosphor blend absorbs EM radiation in a range from about 200nm to 4000nm.

Regarding claims 45-47, 59, and 65, claims 37-39, 57, and 63 are allowable for the reasons given in claim 44 because of their dependency status from claim 44.



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***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Duggal et al. (US 6,294,800) discloses the use of phosphors with a gas discharge tube.

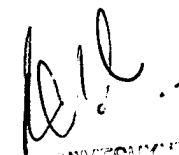
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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